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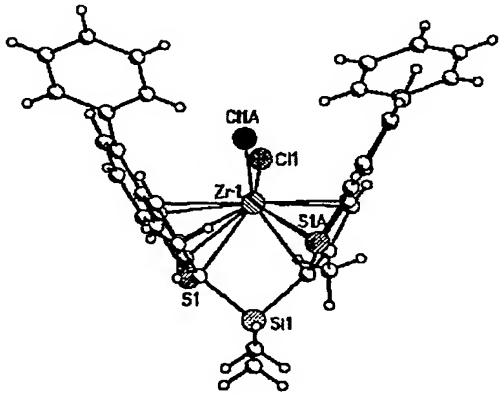
(54) Title: ORGANOMETALLIC TRANSITION METAL COMPOUND, BISCYCLOPENTADIENYL LIGAND SYSTEM, CATALYST SYSTEM AND PROCESS FOR PREPARING POLYOLEFINS




(57) Abstract: The present invention relates to organometallic transition metal compounds of the formula (I) $M^1$ is a metal of group 3, 4, 5 or 6 of the Periodic Table of the Elements or the lanthanicles, X are identical or different and are each an organic or inorganic radical, where two radicals X can also be joined to one another, n is a natural number from 1 to 4, $T^1$, $T^2$ are identical or different and are each a divalent group selected from the group consisting of -O-, -S-, -Se-, -Te-, $-N(R^{13})_-$ $-P(R^{13})-$, $-As(R^{13})-$, $-Sb(R^{13})-$, $-Si(R^{13})_2-$, $-C(R^{13}\ R^{14})-C(R^{13}\ R^{15})-$ and $-C(R^{14})=C(R^{15})-$, where $R^{13}$, $R^{14}$ and $R^{15}$are identical or different and are each hydrogen or an organic radical having from 1 to 40 carbon atoms, $R^1$, $R^7$ are identical or different and are each hydrogen or an organic radical having from 1 to 40 carbon atoms, $R^2$ $R^8$ are identical or different and are each hydrogen or an organic radical having from 1 to 40 carbon atoms, $R^3$ $R^9$ are identical or different and are each halogen or an organic radical having from 1 to 40 carbon atoms, where $R^3$ is not methyl when $T^1$ is $-C(H)=C(H)-$, $R^4$, $R^5$ $R^6$, $R^{10}$, $R^{11}$ and $R^{12}$ are identical or different and are each hydrogen, halogen or an organic radical having from 1 to 40 carbon atoms, or two adjacent radicals $R^4$, $R^5$, $R^6$, $R^{10}$, $R^{11}$ and $R^{12}$ together with the atoms connecting them form a monocyclic or polycyclic, substituted or unsubstituted ring system which has from 1 to 40 carbon atoms and may also contain heteroatoms selected from the group consisting of the elements O, S, Se, Te, N, P, As, Sb and Si, or, if $T^1$ or $T^2$ is -O-, -S-, -Se- or -Te-, the radical $R^3$ together with $R^4$ and/or the radical $R^9$ together with $R^{10}$ forms a monocyclic or polycyclic, substituted or unsubstituted ring system which has from 1 to 40 carbon atoms and may also contain heteroatoms selected from the group consisting of the elements O, S, Se, Te, N, P, As, Sb and Si, and A is a bridge consisting of a divalent atom or a divalent group, biscyclopentadienyl ligand systems having such a substitution pattern, catalyst systems comprising at least one of the organometallic transition metal compounds of the present invention, a process for preparing polyolefins by polymerization or copolymerization of at least one olefin in the presence of one of the catalyst systems of the present invention and the polyolefins obtainable in this way, the use of the biscyclopentaclienyl ligand systems of the present invention for preparing organometallic transition metal compounds and a process for preparing organometallic transition metal compounds using the biscyclopentaclienyl ligand systems.

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